IN THE CLAIMS

1. (Currently Amended) A brake system comprising:

a first member being driven to bring a friction surface against an item to be braked; and

a magnet having at least a first set of north and south poles, and a Hall effect sensor, one of said magnet and said Hall effect sensor being mounted to be movable with said first member when said first member moves the friction surface to actuate braking, the other of said magnet and said Hall effect sensor being mounted on an item movable relative to said first member, relative movement between said magnet and said Hall effect sensor being along a first path, and an axis being defined extending through said at least first set of north and south poles of said magnet, said axis and said first path being non-parallel, and said first path and said axis also being non-perpendicular to each other.

2. (Previously Presented) The brake system as set forth in Claim 1, wherein said first member is a piston for bringing a brake pad into engagement with the item to be braked.

3. (Previously Presented) The brake system as set forth in Claim 2, wherein said magnet is fixed to move with said piston, and said Hall effect sensor is fixed within a housing for the brake system.

4. (Previously Presented) The brake system as set forth in Claim 3, wherein said Hall effect sensor provides feedback of an amount of adjustment necessary for said piston.

5. (Previously Presented) The brake system as set forth in Claim 4, wherein said feedback is provided to an electric motor for driving adjustment of said piston.

6. (Previously Presented) The brake system as set forth in Claim 5, wherein said piston includes a pair of spaced pistons, and each of said pair of spaced pistons being driven for adjustment.

7. (Previously Presented) The brake system as set forth in Claim 3, wherein said magnet is fixed to move with an element mounted on a manual adjustment mechanism, said element being movable when said piston is driven to move the brake pad to actuate braking.

8. (Previously Presented) The brake system as set forth in Claim 1, wherein said magnet includes a single pair of spaced poles, with said first path crossing said axis, and including potential movement on each side of said axis.

9. (Previously Presented) The brake system as set forth in Claim 1, wherein said magnet includes a pair of spaced north and south pole sets defining ends of movement, and said first path being laterally positioned between said pair of spaced north and south pole sets.

10. (Previously Presented) The brake system as set forth in Claim 1, wherein said magnet is a bar magnet having north and south pole faces.

11. (Previously Presented) The brake system as set forth in Claim 1, wherein said first path is defined by said magnet being movable relative to said Hall effect sensor along a direction through which said first member moves to actuate braking, said magnet being constrained against movement relative to said Hall effect sensor in other directions.

12. (Previously Presented) The brake system as set forth in Claim 11, wherein said magnet and said Hall effect sensor have overmolded plastic housings, said overmolded plastic housings being guided along each other to constrain said magnet and said Hall effect sensor to move relative to each other only along said direction of movement of said first member.

13. (Currently Amended) A distance sensor comprising:

a magnet having at least a north pole and a south pole, with an axis extending through said north and said south poles; and

a Hall effect sensor, said Hall effect sensor and said magnet being mounted for movement relative to each other along a linear path, said linear path being non-parallel to said axis, and said linear path and said axis also being non-perpendicular to each other.

14. (Previously Presented) The distance sensor as recited in Claim 13, wherein said magnet includes a single set of spaced north and south poles, with said linear path crossing said axis, and including potential movement on each side of said axis.

15. (Previously Presented) The distance sensor as recited in Claim 13, wherein said magnet includes a pair of laterally spaced north and south pole sets defining ends of movement, and said linear path being laterally positioned between said pair of laterally spaced north and south pole sets.

16. (Previously Presented) The distance sensor as recited in Claim 13, wherein said magnet is a bar magnet having north pole and south pole faces.

17. (Previously Presented) The distance sensor as set forth in Claim 13, wherein said linear path is defined by said magnet being movable relative to said Hall effect sensor along a first direction, said magnet being constrained against movement relative to said Hall effect sensor in other directions.

18. (Previously Presented) The distance sensor as set forth in Claim 17, wherein said magnet and said Hall effect sensor have overmolded plastic housings, said overmolded plastic housings being guided along each other to constrain said magnet and said Hall effect sensor to move relative to each other only along said first direction.

19. (Currently Amended) A disc brake actuator comprising:

a pair of pistons, each of said pair of pistons being driven to drive a brake pad into engagement with an item to be braked;

an adjustment mechanism for said pair of pistons, said adjustment mechanism including tappet gears associated with each of said pair of pistons and driven to drive a threaded tappet, said threaded tappet in turn driving said pair of pistons, said pair of pistons being constrained from rotation such that when said tappet gears are driven to rotate, a threaded connection between said tappet gears and said pair of pistons causes said pair of pistons to move linearly and compensate for wear on said brake pad;

an electric motor for driving said tappet gears; and

a displacement sensor for sensing movement of at least one of said pair of pistons during braking operation, said displacement sensor providing feedback to a control for said electric motor, said control controlling said electric motor to drive said tappet gears and provide appropriate adjustment based upon an amount of movement sensed by said displacement sensor, said displacement sensor including a magnet having at least a north and a south pole, with an axis extending through said north and said south poles, and a Hall effect sensor movable relative to said magnet, and a path of movement between said Hall effect sensor and said magnet being defined such that said path of movement is linear and is non-parallel to said axis, and said path of movement and said axis also being non-perpendicular to each other.

20. (Currently Amended) A disc brake actuator comprising:

a pair of pistons, each of said pair of pistons being driven to drive a brake pad into engagement with an item to be braked;

an adjustment mechanism for said pair of pistons, said adjustment mechanism including tappet gears associated with each of said pair of pistons and driven to drive a threaded tappet,

said threaded tappet in turn driving said pair of pistons, said pair of pistons being constrained from rotation such that when said tappet gears are driven to rotate, a threaded connection between said tappet gears and said pair of pistons causes said pair of pistons to move linearly and compensate for wear on said brake pad;

an electric motor for driving said tappet gears;

a displacement sensor for sensing movement of at least one of said pair of pistons during braking operation, said displacement sensor providing feedback to a control for said electric motor, said control controlling said electric motor to drive said tappet gears and provide appropriate adjustment based upon an amount of movement sensed by said displacement sensor, said displacement sensor including a magnet having at least a north and a south pole, with an axis extending through said north and said south poles, and a Hall effect sensor movable relative to said magnet, and a path of movement between said Hall effect sensor and said magnet being defined such that said path of movement is non-parallel to said axis, and said path of movement and said axis also being non-perpendicular to each other; and

said magnet being fixed to move when said pair of pistons move, and said Hall effect sensor being fixed within a housing.

21. (Previously Presented) The brake system as set forth in claim 1, wherein said axis also defines a plane to extend perpendicularly to faces of said at least first set of north and south poles, and between said at least first set of north and south poles, and said first path being such that an extension of said first path would pass through said plane.

22. (Previously Presented) The distance sensor as set forth in claim 13, wherein said axis also defines a plane to extend perpendicularly to faces of said north and south poles, and between said north and south poles, and said linear path being such that an extension of said linear path would pass through said plane.

23. (Previously Presented) The brake system as set forth in claim 9, wherein said axis also defines a plane to extend perpendicularly to faces of said pair of spaced north and south pole sets, and between said pair of spaced north and south pole sets, and said path being such that an extension of said path would pass through said plane.

24. (New) The brake system as set forth in claim 1, wherein a signal is produced by relative movement between the Hall effect sensor and the magnet, and said signal changing non-linearly with relative movement between the Hall effect sensor and the magnet.

25. (New) The distance sensor as set forth in claim 13, wherein a signal is produced by relative movement between the Hall effect sensor and the magnet, and said signal changing non-linearly with relative movement between the Hall effect sensor and the magnet.

26. (New) The disc brake actuator as set forth in claim 19, wherein a signal is produced by relative movement between the Hall effect sensor and the magnet, and said signal changing non-linearly with relative movement between the Hall effect sensor and the magnet.